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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/143,583	08/31/1998	CHARLES EDWARD BOWERS	30-2138CIP2	3710

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HONEYWELL INTERNATIONAL INC.  
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EXAMINER

YAO, SAM CHAUN CUA

ART UNIT

PAPER NUMBER

1733

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/143,583

Applicant(s)

BOWERS, CHARLES EDWARD

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 4-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lofquist (US 5,478,624) in view of Stahlecker et al (US 4,495,758), Scott (US 4,668,552), and GB 2,205,116 A.

With respect to claims 16 and 21, Lofquist discloses a process of making synthetic yarn having a heat-activated binder fiber, the process comprises:

- a) providing a bulk continuous filament base fiber,
- b) blending the bulk base fiber with heat-activated binder fibers "*via conventional means such as commingling*" (emphasis added) to form a blended yarn, the heat-activated binder fibers have a melting range of 165-190°C;
- c) twist-setting at least two blended yarns to form a plied yarn using a Suessen or Superba processes and the plied yarn comprises about 1-12% weight of binder fibers;
- d) heating the plied yarn to melt the binder fibers; and then
- e) cooling the heated yarn to harden the binder fibers (col. 1 line 62 to col. 2 line 22; col. 3 line 15 to col. 4 line 29; col. 7 line 35 to col. 8 line 17).

Lofquist does not expressly teach using either a ring spinning or wrap spinning technique in forming the blended yarn. However, absent any showing of unexpected benefit/result, it would have been obvious in the art making the synthetic yarn of Lofquist to wrap spin the base fibers and the binder fibers together to form a blended yarn because: a) it is conventional in the art to make yarns by either ring spinning method or wrap spinning method; b) it is well known in the art of making yarn to form a blended binder/base yarn using a wrap spinning method as disclosed for example by Stahlecker et al (col. 1 lines 9-40; abstract); c) it is also old in the carpet making art to uniformly spirally wrapped a binder strand around a base strand to form a tufting yarn as taught for example by Scott (col. 6 lines 52-68; figures 3-5 and 8); d) GB '116 discloses blending binder fibers containing heat-activated adhesive to base fibers using conventional blending technique such as **wrap spinning** to form stabilized carpet yarn thereby "improving the tuft definition and appearance retention" (abstract; page 5 lines 3-11; page 6 full paragraph 1 see lines 9-10, in particular; claim 1); and, e) it is well within the purview of choice in the art to choose on whether to form yarns using an illustrative method suggested by Lofquist or other conventional yarn making methods such as a wrap spinning technique, only the expected result of effectively forming a blended yarn having base fibers and binder fibers would have been achieved in using any one of the well known methods.

Though not expressly disclosed, it would appear that in a process of making blended yarns using a wrap spinning technique would naturally form a blended yarn where a binder fiber material is uniformly wrapped around the base fibers, because of

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the similarity of the manufacturing processes. In any event, it would have been in the art making the yarn of Lofquist because Lofquist is drawn to making blended yarn for carpet and is not restrictive to a particular way of blending binder fibers and base fibers (col. 1 lines 11-22; col. 3 lines 37-59); and, because Scott, drawn to making a carpet, discloses the desirability of uniformly spirally wrapping binder fibers around a core strand and heat-melting the binder fibers in forming tufting yarns (figures 3-5 and 8).

With respect to claims 2-3, since Lofquist teaches using a yarn from a base fiber prior to commingling it with binder fibers (col. 3 lines 37-41); since it is conventional in the art to form yarns by spinning staple fibers/filaments; and since Lofquist also teaches heating a plied yarn during a twist-setting operation (col. 4 lines 7-29); these claims would have been obvious in the art making the synthetic yarn of Lofquist.

3. Claims 16, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stahlecker et al (US 4,495,758) in view of Lofquist (US 5,478,624), GB 2,205,116 A, and Scott (US 4,668,552).

Stahlecker et al discloses a process of making blended wrapped yarns, the process comprises wrap spinning a binder strand and a yarn sliver together to spirally wrap the binder strand around the yarn sliver (col. 1 lines 9-40; abstract).

Stahlecker et al does not teach twisting two or more yarns to form a plied yarn and then heat-setting the plied yarn. However, it would have been obvious in the art, motivated by the desire to apply the yarn making process of Stahlecker et al to form carpet yarns, to twist two or more yarns to form a plied yarn and then to heat-set the plied yarn as such is conventional in the art of making carpet yarns as evidence from

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the teachings of Lofquist (col. 1 62 to col. 2 line 13) in order to obtain the desired carpet yarn bulk.

It is unclear whether the binder strand taught by Stahlecker et al and the binder strand of related arts disclosed in the background of the invention are heat-activated adhesive. In any event, such would have been obvious in the art making carpet yarns using the process taught by Stahlecker et al because: a) GB '116 discloses forming carpet yarns by blending binder-fibers containing heat-activated adhesive and base fibers using a conventional blending technique such as **wrap-spinning** to stabilize the yarn thereby "improving the tuft definition and appearance retention" (abstract; page 6 full paragraph 1; claim 1); and b) it is old in the carpet art to spirally wrap heat-activated binder fibers around base fibers as exemplified in the teachings of Scott (col. 2 lines 60-65; col. 6 lines 52-68; figures 3-4 and 8-9). Note: Scott also discloses the advantage of enhancing "the integrity of the fabric" in using heat-activated binder fibers in forming a blended wrap yarn (col. 2 lines 60-65). Moreover, (**not presently recited in the claims**), it is also taken that the blended yarn of Stachlecker and the yarn of related art comprises binder strand which is wrapped uniformly around the yarn sliver because of the similarity of the manufacturing processes and because Stahlecker et al expressly discloses "a binder strand which is spirally wrapped about the core strand." (abstract). In any event, such would have been obvious in the art because Scott teaches the desirability of uniformly and spirally wrapping binder strand around a base yarn as shown in figures 3-6.

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The process of Stahlecker and the related art are silent on the composition of the binder relative to the yarn sliver. However, such would have been obvious in the art because Lofquist discloses the desirability of blending 1-12 weight per cent of binder strand to a base yarn to form a carpet yarn (col. 2 lines 28-58); because Scott discloses spirally wrapping about 3-10 weight per cent (based on the total weight of the yarn) of binder strand around a base strand (claims 2 and 6); and, because one in the art would have determined a workable composition of a blended yarn for the desired end-use of the article. As for the steps of heating to melt the binder around the yarn and cooling to harden the binder, such would have been obvious in the art as such is conventional in the art as taught by Scott and Lofquist.

With respect to claims 2-3, see column 3 line 38 to col. 4 line 42 of Lofquist. These claims would have been obvious in the art for the same reasons as numbered paragraph 2.

One in the art would appreciate the advantage of enhancing the integrity and transportability in spinning the yarn sliver prior to the blending process.

### ***Double Patenting***

4. Claims 1-3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16, 18, and 21 of copending Application No. 08/933,822 for reasons of record set forth in paper No. 6 numbered section 7.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Response to Arguments***

5. Applicant's arguments filed on 10-01-01 have been fully considered but they are not persuasive.

In response to Applicant's argument on page 5 full paragraph 1 regarding the "uniformly wrapping" of the binder fiber around a base fiber, it is submitted that such would naturally flow from the modified process of Lofquist. The recited process steps and the modified process of Lofquist are indistinguishable, how can it be possible to have different outcome? More important, such argument is not commensurate with the scope of the recited claims. The presently recited claims do not require "uniform" wrapping of binder fibers around a base fiber.

In response to Applicant's argument on page 5 full paragraph 2, Examiner agrees with Applicant's that there is no twisting in commingled yarn. However, Lofquist is not restrictive to a commingling process. In fact, Lofquist teaches blending heat-activated binder fibers with base fibers with any "conventional means such as commingling.". Since it is old in the art to spirally wrap heat-activated binder fibers around base fibers as taught for example by Scott; and since wrap-spinning technique is a conventional way of forming a yarn; since Stahlecker et al teaches using a wrap-spinning method to form a yarn and spirally-wrap binder fibers (may not be heat-activated) around base fibers; it would have been obvious in the art to use a wrap-spinning process to blend the heat-activated fibers and base fibers and form the yarn of Lofquist. As for Applicant's assertion that they are unaware of "any teaching or suggestion that



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such a spirally wrapped binder strand contains heat-activated adhesive material" as opposed to binder strand which "physically" (emphasis in original) binds to permit downstream processing, Applicant's attention is directed to the teachings of Scott.

In response to Applicant's argument on page 5 last paragraph, as noted above, since Lofquist teaches using a yarn from a base fiber prior to commingling it with binder fibers (col. 3 lines 37-41); since it is conventional in the art to form yarns by spinning staple fibers/filaments, forming the base fiber yarn would have been an obvious expediency in the art.

### ***Conclusion***

6. Tung et al (US 5,175,038), cited as a reference of interest showing that it is a common practice in the art to use "heat-activated binder fibers" to enhance the retention of tuft identity (col. 1 lines 61-65) and to heat-set plied yarn (col. 1 lines 14-25).

7. Since Examiner has presented new grounds of rejection, the application is re-opened and made non-final.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W Ball can be reached on (703) 308-2058. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 305-7115 for regular communications and (703) 305-7718 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
Sam Chuan C. Yao  
Primary Examiner  
Art Unit 1733

scy  
December 3, 2001